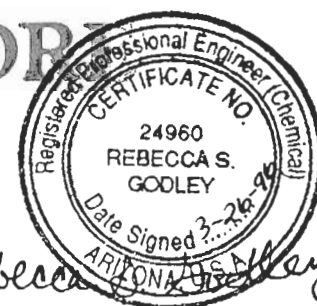

FINAL LUST CLOSURE REPORT
BUILDING 243
DIESEL FUEL UST, DESIGNATION NO. 2 CLOSURE
ADEQ LUST FILE NO. 4715.2989
HEATING OIL UST, DESIGNATION NO. 3 INVESTIGATION
ADEQ LUST FILE NO. 4715.2988
SOIL INVESTIGATION AND REMEDIATION
CAMP NAVAJO, BELLEMONT, ARIZONA

 **DAMES & MOORE**

D&M Job No. 27674-003-022
March 26, 1996



EXECUTIVE SUMMARY

BUILDING 243 LUST REPORT

This document is submitted by the Arizona Army National Guard to the Arizona Department of Environmental Quality as a request for:

- Closure of UST Designation No. 2 at the Building 243 LUST site at Camp Navajo (Figure 1)
- Closure of that portion of UST Designation No. 3 outside of the building footprint.

This closure report documents activities conducted by Dames & Moore at Building 243 to delineate the hydrocarbon-impacted soil and remediation of the excavated soils.

The investigation and onsite treatment using low temperature thermal desorption activities at Building 243 were conducted by Dames & Moore as part of a multiple site petroleum hydrocarbon investigation and remediation program at the Arizona Army National Guard Camp Navajo. The program also included soil investigation and remediation activities at the OMS-6 LUST Area, OMS-6 MOGAS surface spill, Building 29, and the Asphalt Plant Area (Old Asphalt Plant, Asphalt Plant AST, and Asphalt Plant Hydrocarbon surface spill site). All soils excavated during the investigation process were stockpiled at a central location near the Asphalt Plant on the Camp Navajo for onsite treatment using low temperature thermal desorption. Soil treatment was conducted as a single activity for all soil excavated during the investigation activities at each LUST site.

On October 3, 4, and 10, 1994, an area encompassing the LUST release at UST Designation No. 2 and No. 3 was excavated. The excavation areas were based on the previous Dames & Moore drilling and soil sampling program conducted at Building 243 (Figures 2 and 3) and the UST removal activities. Hydrocarbon odors were not apparent during the excavation activities at UST Designation No. 2. After the excavation activities were completed at UST Designation No. 2, soil samples were collected from the sidewalls and bottom of the excavation. TPH was not detected in any soil sample collected (Table 1 and Figure 4). These results provided delineation of the hydrocarbon-impacted area for Building 243 UST Designation No. 2. Hydrocarbon odors were apparent during the excavation activities at UST Designation No. 3. At the UST Designation No. 3 location, detectable concentrations of TPH were reported for soil samples collected from only the western wall of the excavation (Table 2 and Figure 4). The western wall of the excavation was located directly adjacent (within 3 feet) to Building 243 and exposed a

portion of a 6-inch waterline. Additional excavation of soil closer to Building 243 was not possible due to the proximity of the excavation to the building and the water line. Therefore, additional investigation activities to delineate the impact toward Building 243 could not be conducted. Two soil samples, collected from the western wall of the excavation, were analyzed for BTEX in the event a risk assessment would be required for closure of UST Designation No. 3 (Table 2 and Figure 4).

It is concluded that the investigation and remediation activities were successful in providing delineation and onsite treatment using low temperature thermal desorption of the hydrocarbon-impacted soil at the Building 243 UST Designation No. 2. It is recommended that this LUST file be closed. The Arizona Army National Guard requests ADEQ to grant closure for the Building 243 UST Designation No. 2 LUST site, ADEQ LUST File No. 4715.2989.

It is concluded that the investigation and remediation activities were successful in providing delineation and remediation of the hydrocarbon-impacted soil outside of the building footprint at the Building 243 UST Designation No. 3. It is recommended that this portion of the site be closed. The Arizona Army National Guard requests that ADEQ grant closure to the portion of UST Designation No. 3 (ADEQ LUST File No. 4715.2988) outside of the building footprint.

Additional investigation activities, to delineate the hydrocarbon impact at UST Designation No. 3 potentially beneath Building 243, are recommended. Angle drilling using an air percussion hammer drilling rig should be utilized to penetrate the fractured basalt subsurface. Soil samples should be collected for the purposes of hydrocarbon-impact delineation and to support a risk-based closure of Building 243 UST Designation No. 3.

**FINAL LUST CLOSURE REPORT
BUILDING 243
UST DESIGNATION NO. 2 CLOSURE
ADEQ LUST FILE NO. 4715.2989
UST DESIGNATION NO. 3 INVESTIGATION
ADEQ LUST FILE NO. 4715.2988
SOIL INVESTIGATION AND REMEDIATION
CAMP NAVAJO, BELLEMONT, ARIZONA
FOR THE ARIZONA ARMY NATIONAL GUARD**

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**FINAL CLOSURE REPORT
BUILDING 243
UST DESIGNATION NO. 2 CLOSURE
ADEQ LUST FILE NO. 4715.2989
UST DESIGNATION NO. 3 INVESTIGATION
ADEQ LUST FILE NO. 4715.2988
SOIL INVESTIGATION AND REMEDIATION
CAMP NAVAJO, BELLEMONT, ARIZONA
FOR THE ARIZONA ARMY NATIONAL GUARD**

1.0 INTRODUCTION

This document is submitted to the Arizona Department of Environmental Quality as a request for closure of UST Designation No. 2 (ADEQ LUST File No. 4715.2989) at the Building 243 LUST site at Camp Navajo by the Arizona Army National Guard (Figure 1). This report also documents activities conducted at a second UST location at Building 243, UST Designation No. 3 (ADEQ LUST File No. 4715.2988). Both activities included an investigation to delineate the hydrocarbon-impacted soil and remediation of the excavated soils.

The LUST sites were located on the north and east sides of Building 243 (Figure 2). The UST was removed prior to this investigation and remediation activity, by Western Technologies, Inc. (WT) of Flagstaff, Arizona, under subcontract to Irwin-Jurkewicz Corporation (IJC), of Windham, New Hampshire. A subsequent investigation of hydrocarbon impact was conducted in 1993 by Dames & Moore using soil borings drilled by hollow-stem auger drilling rigs. The subsequent investigation, conducted by Dames & Moore, included soil excavation to delineate the horizontal and vertical extent of hydrocarbon-impacted soil to nondetectable concentrations of total petroleum hydrocarbons (TPH) at the site. The excavated soil was remediated on-site using a thermal desorption unit to reduce the hydrocarbon concentrations to below ADEQ Suggested Soil Cleanup Levels (SSCLs). The treated soil was then used as backfill material in the excavation.

The activities conducted at Building 243 were conducted as part of a multiple site petroleum hydrocarbon investigation and remediation program conducted by Dames & Moore at the Arizona Army National Guard Camp Navajo. The program additionally included soil excavation and remediation activities at OMS-6 LUST site, OMS-6 MOGAS surface spill, Building 29, and the

Asphalt Plant Area (Old Asphalt Plant, Asphalt Plant AST, and Asphalt Plant Hydrocarbon surface spill site). Soil remediation was conducted as a single activity for all soil excavated during the investigation at each LUST site.

1.1 PREVIOUS ACTIVITIES

1.1.1 UST Removal

Irwin-Jurkewicz Corporation (IJC), Windham, New Hampshire, subcontracted Western Technologies, Inc. (WT) of Flagstaff, Arizona to perform the two UST removals. Refer to IJC's report titled "Contract DAHA02-92-C-0006, Upgrade Fuel Storage Tanks", dated October 29, 1993. Under this contract, one UST (Designated UST No. 1) was removed at Building 29, and two USTs (designated UST Designation No. 2 and UST Designation No. 3) were removed at Building 243. To review this report for additional information, refer to the Dames & Moore Remedial Action Plan (RAP) Building 243, dated September 12, 1994 (Dames & Moore, 1994).

The separate UST locations were adjacent to Building 243. UST Designation No. 2 was located to the north and UST Designation No. 3 to the east of Building 243 (Figure 2). The USTs were removed on August 20, 1993 and both were 1,000-gallon steel tanks which had contained diesel fuel. According to Camp Navajo personnel, UST Designation No. 2 was used to power the engines to run the fire suppression pumps and UST Designation No. 3 was used to fuel a furnace. Soil samples were collected by IJC using standard methods and were analyzed using Arizona Department of Health Services (ADHS) Method BLS-181 (EPA Method 418.1). Detectable concentrations of TPH were reported for both UST locations. The excavated material was stored on-site for characterization and the UST pits were backfilled with fill material.

1.1.2 Site Characterization

Dames & Moore conducted an investigation to characterize the vertical and lateral extent of petroleum-impacted soil at former UST Designation No. 3 (Figure 2). The investigation consisted of hollow-stem auger drilling, soil sampling, and on-site mobile laboratory analysis.

Soil borings were advanced and soil samples collected to define the extent of petroleum-impacted soils at the former UST location. The borings were advanced adjacent to and subsequently inside the former UST Designation No. 3 pit. All borings were advanced to depths adequate to determine the vertical extent of petroleum-impacted soil or to auger refusal (Figure 2).

Only soil samples collected from boring 243-5, located within the former tank pit, contained detectable concentrations of TPH, ethylbenzene, and xylenes. At a depth of 10 feet below ground surface (bgs), near the bottom of the tank pit excavation, TPH was detected at a concentration of 27 mg/kg. At a depth of 12 feet bgs (in native soil beneath the pit), TPH, ethylbenzene, and xylenes were detected at concentrations of 4,100, 0.085, and 0.89 mg/kg, respectively. At a depth of 17 feet bgs, the TPH concentration had decreased to 1,800 mg/kg, and BTEX constituents were not detected. At a depth of 22 feet bgs, TPH was not detected. At this location, this sample defined the vertical extent of the petroleum impact (Figure 2).

TPH or BTEX was not detected in the four borings located outside the UST Designation No. 3 pit, or in the second boring (Boring 243-6) advanced inside the pit. These borings delineated the lateral extent of the petroleum-impact. Boring 243-5 delineated the vertical extent of the petroleum impact (Figure 2).

For additional information regarding this soil investigation and history of the site, refer to the Dames & Moore report titled "Petroleum-Contaminated Soil Investigation, Camp Navajo, Bellemont, Arizona, for the Arizona Army National Guard," dated May 27, 1994. To review this report for additional information, refer to the "Final Remedial Action Plan Building 243", dated September 12, 1994 (Dames & Moore).

1.2 SITE CLOSURE STRATEGY

The strategy for closure of this site involved:

- Excavating soil to collect samples to delineate the vertical and horizontal extent of the hydrocarbon-impacted soil.
- Analyzing soil in a mobile laboratory used on-site to provide real-time soil concentration data during excavation activities.
- Excavating additional soil as required for delineation and remediation of the site.
- Stockpiling the hydrocarbon-impacted soil at a central location.
- Onsite low temperature thermal desorption treatment of the soil to below ADEQ SSCLs.
- Backfill the excavation with treated soil.

2.0 SITE INVESTIGATION AND REMEDIATION

2.1 INVESTIGATION AND REMEDIATION GOAL AND OBJECTIVES

The goal of the site investigation and remediation activities was to delineate the hydrocarbon-impacted soil and treat the soil for closure of UST Designation No. 2 and UST Designation No. 3 located at Building 243. This was accomplished for UST Designation No. 2 by characterizing the vertical and horizontal extent of the hydrocarbon-impacted soils and remediating the excavated soil by thermal desorption to concentrations below ADEQ SSCLs. The project goal and specific objectives and activities completed to meet these objectives are as follows:

- Goal: Closure of UST Designation No. 2 and UST No.3 at Building 243.
- Required: Delineate the hydrocarbon-impacted soil to nondetectable concentrations of TPH and treat soil to meet ADEQ requirements.

- Objective 1: Characterize the horizontal extent of hydrocarbon-impacted soil.
- Activity: Collect and analyze soil samples at selected locations from the excavation to define the horizontal nondetectable concentration limit for TPH.

- Objective 2: Characterize the vertical extent of hydrocarbon-impacted soil.
- Activity: Collect and analyze soil samples at selected locations from the excavation to define the vertical nondetectable concentration limit for TPH.

- Objective 3: Treat the soils with concentrations greater than ADEQ SSCLs.
- Activity: Using a thermal desorption unit on-site, remove TPH the soil to below ADEQ SSCLs.

2.2 SOIL SAMPLING PROCEDURES

Soil samples were collected at the boundaries of the excavation from native undisturbed soil, by Dames & Moore personnel, using a stainless steel trowel at UST Designation No. 2. Soil samples were collected from the excavator bucket from native soil, which was not in contact with the bucket, at UST Designation No. 3. The following sampling procedures were followed for each sample collected.

1. The Dames & Moore sampling personnel used a new pair of disposable latex sampling gloves at each sample location. Prior to each use, the stainless steel sampling trowels were decontaminated using an Alconox™ brush wash and triple rinse. The stainless steel trowel sampling tool was used to scrape away at least one-inch of native undisturbed soil at each sampling location at UST Designation No. 2. The excavator removed soil from a designated location in the UST Designation No. 3 excavation as directed by the field engineer.
2. A soil sample was collected from the sampling location or bucket and placed in a 4-ounce glass jar. The 4-ounce glass jar was filled one-third full and the sampling personnel compacted the soil in the jar using their thumb. This procedure was repeated until the jar was filled with soil and the lid was tightly placed on the jar.
3. A label was then placed on the jar, an entry was made on the chain-of-custody documentation, and the sample was delivered to the mobile laboratory for analysis.

2.2.1 Quality Control Samples

Duplicate Soil Samples - During the investigation activities at Camp Navajo, a random selection of 10% of the soil samples were analyzed at fixed laboratory. The duplicate soil sample results for the activities at Building 243 are presented in Table 3 and the laboratory analytical report is presented in Appendix A.

Field Equipment Blank - During the investigation activities at Camp Navajo, two field equipment blanks were collected for analysis. The field equipment blanks were prepared by collecting analyte-free water in a VOA vial after the water is poured over the decontaminated equipment. The equipment blanks were collected from the excavator bucket after decontamination of the bucket using an Alconox™ wash and rinse. The samples were analyzed for BTEX using EPA Method 8020. The equipment blank analytical results for this multiple site investigation activity are presented in Table 3 and the laboratory report in Appendix A.

2.2.2 Chain-of-Custody Documentation

For each sample submitted to the or fixed mobile laboratory for analysis, an entry was made on a chain-of-custody form supplied by the laboratory. Sampling personnel maintained custody of the samples until the samples were relinquished to the on-site mobile laboratory personnel.

Soil sampling information was recorded on laboratory chain-of-custody forms. The information recorded was completed when each soil sample was relinquished to the mobile laboratory on-site. The information recorded included the following:

- Project information
- Sample identification label
- Sampling time and date
- Sample matrix
- Requested analytical method
- Relinquishing and receiving signatures

2.3 INVESTIGATION ACTIVITIES

2.3.1 UST Designation No. 2 Soil Excavation Activities

On October 4 and 10, 1994, an area encompassing the release point was selected and was excavated. This excavation area, as shown on Figure 2, was based on the previous UST Designation No. 2 removal activities (Irwin-Jurkewicz, 1993). Hydrocarbon odors were not apparent during the excavation activities.

2.3.2 UST Designation No. 2 Soil Sampling Locations and Analytical Results

After the excavation activities were completed, soil samples were collected from the sidewalls and bottom of the excavation. The soil samples were collected at the discretion of the field engineer to delineate the hydrocarbon-impacted soils. Soil samples, designated 243 sequence number 1 through 7, were collected from the excavation. The soil sample locations are presented on Figure 4.

The soil samples were analyzed on-site using a mobile laboratory for TPH using ADHS BLS-181. The soil sample results are summarized on Table 1 and locations depicted on Figure 4. All

soil samples were nondetect for TPH (ND = < 40 mg/kg). These results provided delineation of the hydrocarbon-impacted area for the Building 243 UST Designation No. 2.

2.3.3 UST Designation No. 3 Soil Excavation Activities

On October 3, 1994, an area encompassing the release point was selected and was excavated. This excavation area, as shown on Figure 2, was based on the report of the previous UST Designation No. 3 removal activities (Irwin-Jurkewicz, 1993) and the previous soil boring investigation. Hydrocarbon odors were apparent during the excavation activities.

2.3.4 UST Designation No. 3 Soil Sampling Locations and Analytical Results

After the excavation activities were completed, soil samples were collected from the sidewalls and bottom of the excavation. The soil samples were collected at the discretion of the field engineer to delineate the hydrocarbon-impacted soils. Soil samples, designated 243 sequence number 1 through 9, were collected from the excavation. Soil samples designations also include a description of which wall of the excavation the sample was collected from (i.e., east (E), west (W), or north (N)). The soil sample locations are presented on Figure 4.

The soil samples were analyzed on-site by a mobile laboratory for TPH using ADHS BLS-181. A majority of the soil samples collected were nondetect for TPH (ND = < 40 mg/kg). Only soil samples 243-W-5-10 and 243-W-6-20 were reported to have detectable concentrations of TPH at concentrations of 440 mg/kg and 120 mg/kg, respectively. The soil sample results are summarized on Table 1 and locations depicted on Figure 4.

At the UST Designation No. 3 location, detectable concentrations of TPH and TEX were reported for soil samples collected from only the western wall of the excavation (Table 2 and Figure 4). The western wall of the excavation was located directly adjacent (within 3 feet) of Building 243 and exposed a portion of a 6-inch waterline. Additional excavation of soil toward Building 243 was not possible due to the proximity of the excavation to the building and the water line. Therefore, additional investigation activities to delineate the impact toward the Building 243 could not be conducted using excavation methods to collect samples. Two soil samples collected from the western wall of the excavation were analyzed for BTEX in the event a risk assessment would be required for closure of UST Designation No. 3 (Table 2 and Figure 4).

2.4 SOIL TREATMENT ACTIVITIES

The activities conducted at the Building 243 LUST were conducted as part of a multiple site petroleum hydrocarbon investigation and remediation program conducted by Dames & Moore at the Arizona Army National Guard Camp Navajo. The program additionally included activities at OMS-6 LUST site, OMS-6 MOGAS surface spill, Building 29, and the Asphalt Plant Area (Old Asphalt Plant, Asphalt Plant UST, and Asphalt Plant Hydrocarbon surface spill site). Soils excavated from these areas were transported to a central location near the Asphalt Plant and stockpiled for treatment.

During the period from October 30, 1994 through November 30, 1994, the soils were treated onsite using thermal desorption. Soil samples were collected from every 100 tons of soil treated to verify concentrations of TPH and BTEX were reduced to below ADEQ SSCLs. After treatment, the soil was used as backfill material in the excavation at Building 29.

Soil treatment activities are documented in a report entitled, "Soil Treatment Report", prepared by Dames & Moore (March 1995).

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 UST DESIGNATION NO. 2

3.1.1 Conclusions

The analytical results summarized on Table 1 and sampling locations depicted on Figure 4 demonstrate both horizontal and vertical delineation of the hydrocarbon-impacted soil at the Building 243 UST Designation No. 2. The results of this investigation are:

- TPH was not detected in any soil sample collected providing delineation of the hydrocarbon impact.
- All the soil excavated during the investigation activities at UST Designation No. 2 was treated by thermal desorption.

Therefore, it is concluded that the activities conducted were successful in providing delineation and treatment of the hydrocarbon-impacted soil at the Building 243 UST Designation No. 2.

3.1.2 Recommendations

It is recommended that this LUST site be closed. The Arizona Army National Guard requests ADEQ to grant closure of the Building 243 UST Designation No. 2, ADEQ LUST File No. 4715.2989.

3.2 UST DESIGNATION NO. 3

3.2.1 Conclusions

Additional investigation activities, to delineate the hydrocarbon impact at UST Designation No. 3 potentially beneath Building 243, will need to be conducted. Angle drilling using an air percussion hammer drilling rig should be utilized to penetrate the fractured basalt subsurface. Soil samples should be collected for both delineation and to support a risk-based closure of Building 243 UST Designation No. 3.

The analytical results summarized on Table 2 and sampling locations depicted on Figure 4 demonstrate the horizontal and vertical delineation of the hydrocarbon-impacted soil was completed at the Building 243 UST Designation No. 3. The results of this investigation are:

- TPH was not detected in soil samples collected from the north, east, south, and bottom of the excavation providing delineation of the hydrocarbon impact in those directions.

- TPH was reported in soil samples 243-W-5-10 and 243-W-6-20 having concentrations of 440 mg/kg and 120 mg/kg, respectively.

- Toluene, ethylbenzene and xylene concentrations were reported in soil samples 243-W-6-20, having concentrations of 0.15 mg/kg, 0.21 mg/kg, and 0.26 mg/kg, respectively.

- All the soil excavated during the investigation activities at UST Designation No. 2 was treated by thermal desorption.

It is concluded that activities conducted were successful in providing delineation and remediation of the hydrocarbon-impacted soil outside of the Building 243 footprint.

3.2.2 Recommendations

It is recommended that the UST Designation No. 3, outside of the Building 243 footprint, be closed. The Arizona Army National Guard requests ADEQ to grant closure to that portion of UST Designation No. 3 (ADEQ LUST File No. 4715.2988) outside of the building footprint.

At the UST Designation No. 3 location, detectable concentrations of TPH and TEX were reported for soil samples collected from only the western wall of the excavation (Table 2 and Figure 4). The western wall of the excavation was located directly adjacent (within 3 feet) of Building 243 and exposed a portion of a 6-inch waterline. Additional excavation of soil toward Building 243 was not possible due to the proximity of the excavation to the building and the water line. Therefore, additional investigation activities to delineate the impact toward the Building 243 could not be conducted using excavation methods to collect samples. Two soil samples collected from the western wall of the excavation were analyzed for BTEX in the event a risk assessment would be required for closure of UST Designation No. 3 (Table 2 and Figure 4).

4.0 REFERENCES

- Dames & Moore, 1994. Final Remedial Action Plan, Building 243, Camp Navajo, Bellemont, Arizona, for the Arizona Army National Guard, September 12, 1994.
- Irwin-Jurkewicz Corporation, 1993. UST Removal and Subsurface Site Assessment, Bellemont, Arizona.

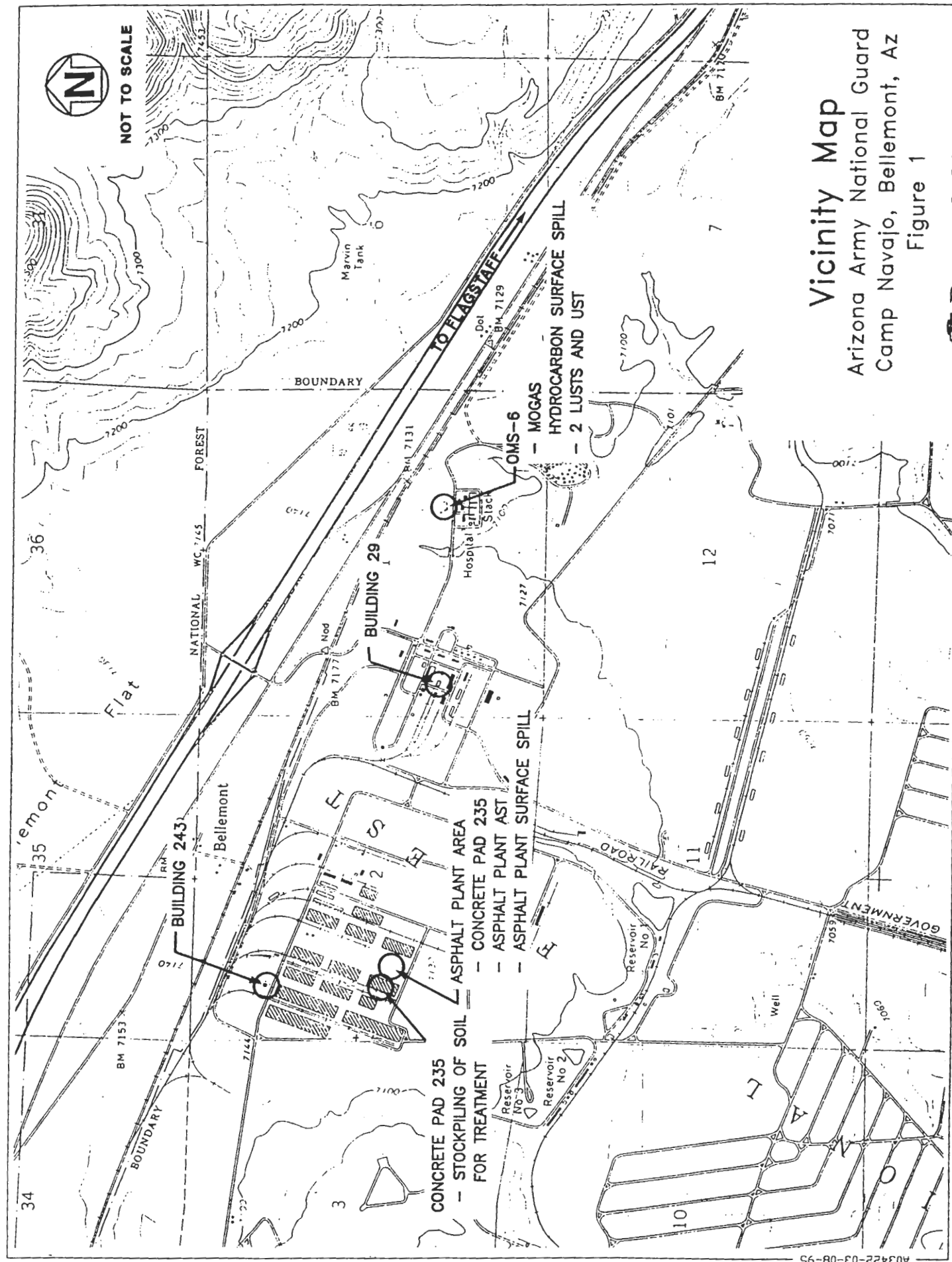
TABLE 1 UST Designation No. 2 Building 243 LUST Investigation Soil Analytical Data Summary Camp Navajo, Arizona				
Sample I.D.	Sample Location/Type	Sample Depth (ft bgs)	TPH ADHS BLS-181 (mg/kg)	BTEX EPA Method 8020 (mg/kg)
243-1-4	Sidewall/Grab	4	ND (< 40)	NA
243-2-4	Sidewall/Grab	4	ND (< 40)	NA
243-3-4	Sidewall/Grab	4	ND (< 40)	NA
243-4-4	Bottom/Grab	4	ND (< 40)	NA
243-5-4	Sidewall/Grab	4	ND (< 40)	NA
243-6-4	Sidewall/Grab	4	ND (< 40)	NA
243-7-8	Bottom/Grab	8	ND (< 40)	NA
ADEQ SSCLs			100	B/T/E/X 0.13/200/68/44
Notes: BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes TPH - Total Petroleum Hydrocarbon ND - Nondetectable Concentration NA - Not Analyzed				

TABLE 2
UST Designation No. 3
Building 243 LUST Investigation
Soil Analytical Data Summary
Camp Navajo, Arizona

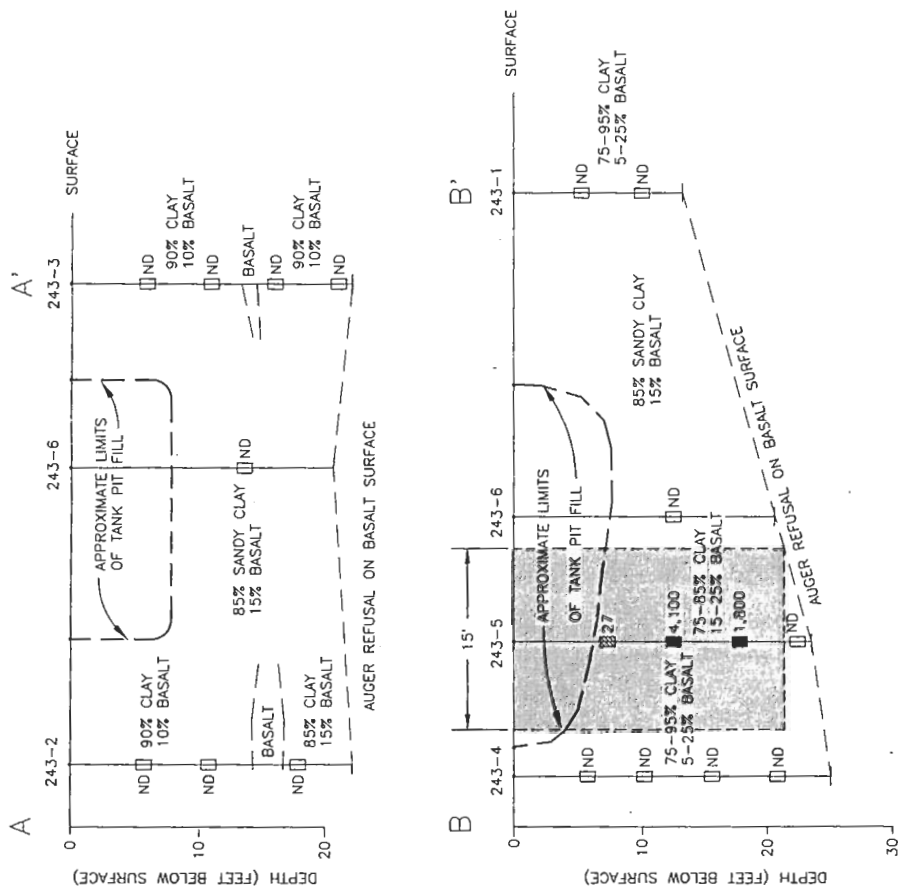
Sample I.D.	Sample Location/Type	Sample Depth (ft bgs)	TPH ADHS BLS-181 (mg/kg)	BTEX EPA Method 8020 (mg/kg)
243-E-1-10	Sidewall/Grab	10	ND (< 40)	NA
243-E-2-20	Sidewall/Grab	20	ND (< 40)	NA
243-N-3-10	Sidewall/Grab	10	ND (< 40)	NA
243-N-4-20	Sidewall/Grab	20	ND (< 40)	NA
243-W-5-10	Sidewall/Grab	10	440	B/T/E/X ND/ND/ND/ND ND (< 0.050)
243-W-6-20	Sidewall/Grab	20	120	B/T/E/X ND/0.15/0.21/0.26 ND (< 0.050)
243-S-7-10	Sidewall/Grab	10	ND (< 40)	NA
243-S-8-20	Sidewall/Grab	20	ND (< 40)	NA
243-B-9-20	Bottom/Grab	20	ND (< 40)	NA
Notes: BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes TPH - Total Petroleum Hydrocarbon ND - Nondetectable Concentration NA - Not Analyzed				

TABLE 3 Building 243 LUST Investigation Duplicate Soil Sample Analytical Results Camp Navajo, Arizona		
Sample I.D.	BTEX EPA Method 8020 Mobile/Fixed Lab (mg/kg)	TPH ADHS BLS-181 Mobile/Fixed Lab (mg/kg)
243-W-6-20	NA	Mobile: 120 Fixed: 120
243-W-5-10	NA	Mobile: 440 Fixed: 440
Notes: BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes TPH - Total Petroleum Hydrocarbon ND - Nondetectable Concentration		

Building 243 LUST Investigation Equipment Blank Analytical Results Camp Navajo, Arizona	
Sample I.D.	BTEX EPA Method 8020 (mg/kg)
243-EQUIP	ND (< 0.050)
AP-EQUIP	ND (< 0.050)
Notes: BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes TPH - Total Petroleum Hydrocarbon ND - Nondetectable Concentration	



Vicinity Map
Arizona Army National Guard
Camp Navajo, Bellemont, Az
Figure 1

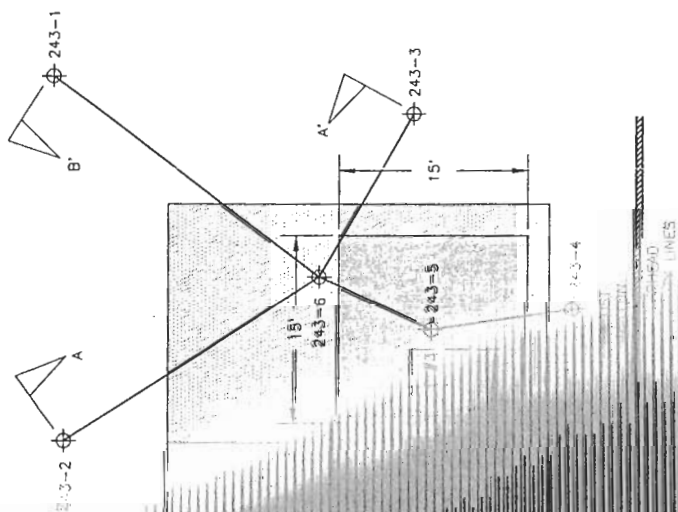


BUILDING 243 SITE AND EXCAVATION PLAN ARIZONA ARMY NATIONAL GUARD NAVAJO ARMY DEPOT ACTIVITY

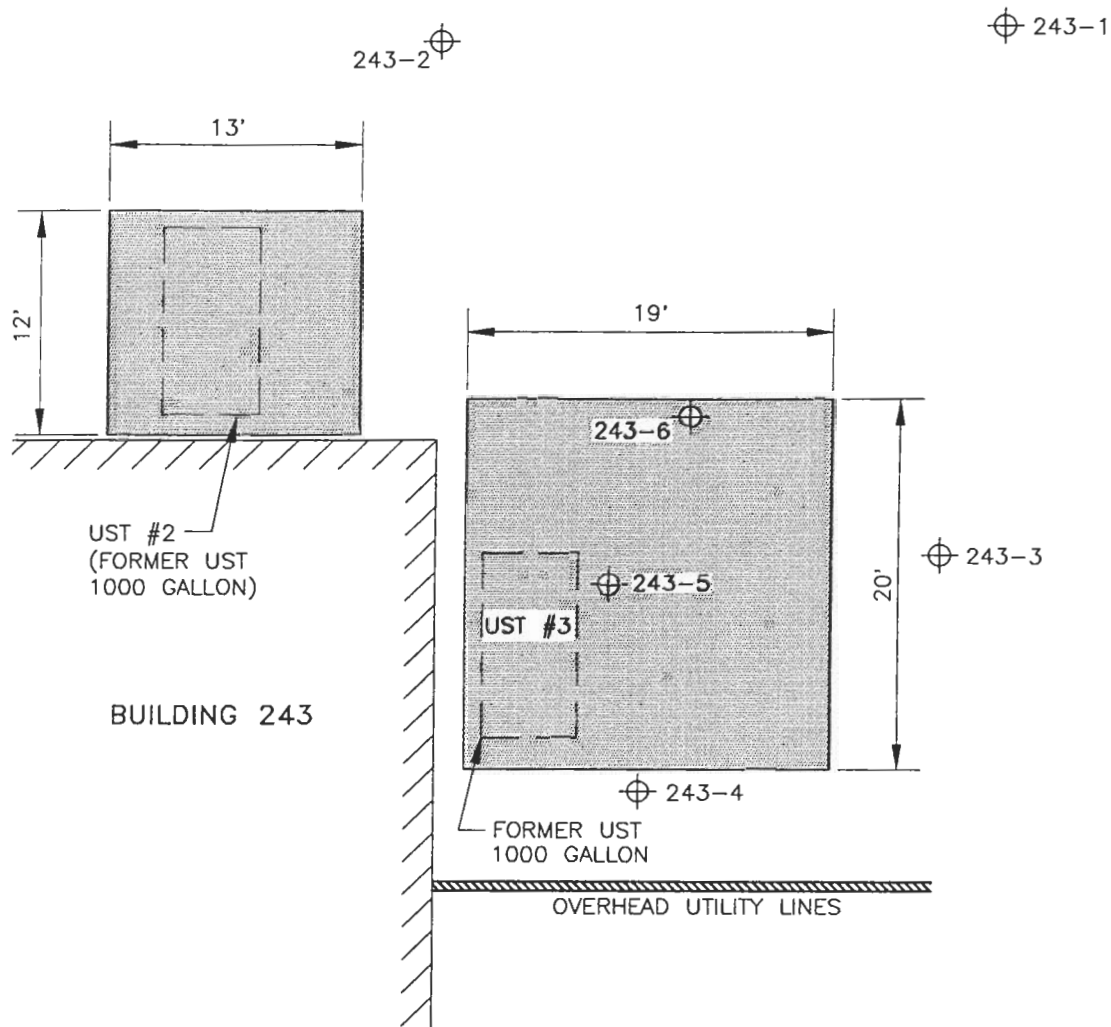
Figure 2

DAMES & MOORE
27674-C01-033

NOTE: CROSS-SECTIONS ASSUME A
HORIZONTAL GROUND SURFACE.



- LEGEND:**
- CONCENTRATIONS**
 - NON-DETECT <20 ppm
 - ▨ 20 ppm TO <100 ppm
 - >100 ppm
 - APPROXIMATE AREA OF SOIL EXCAVATION**
 - ▨
 - BACKFILLED TANK PIT**
 - ▨
 - BORING LOCATION**
 -
 - FILL PORT FOR UST**
 -
 - BORING NUMBER/DEPTH**
 -

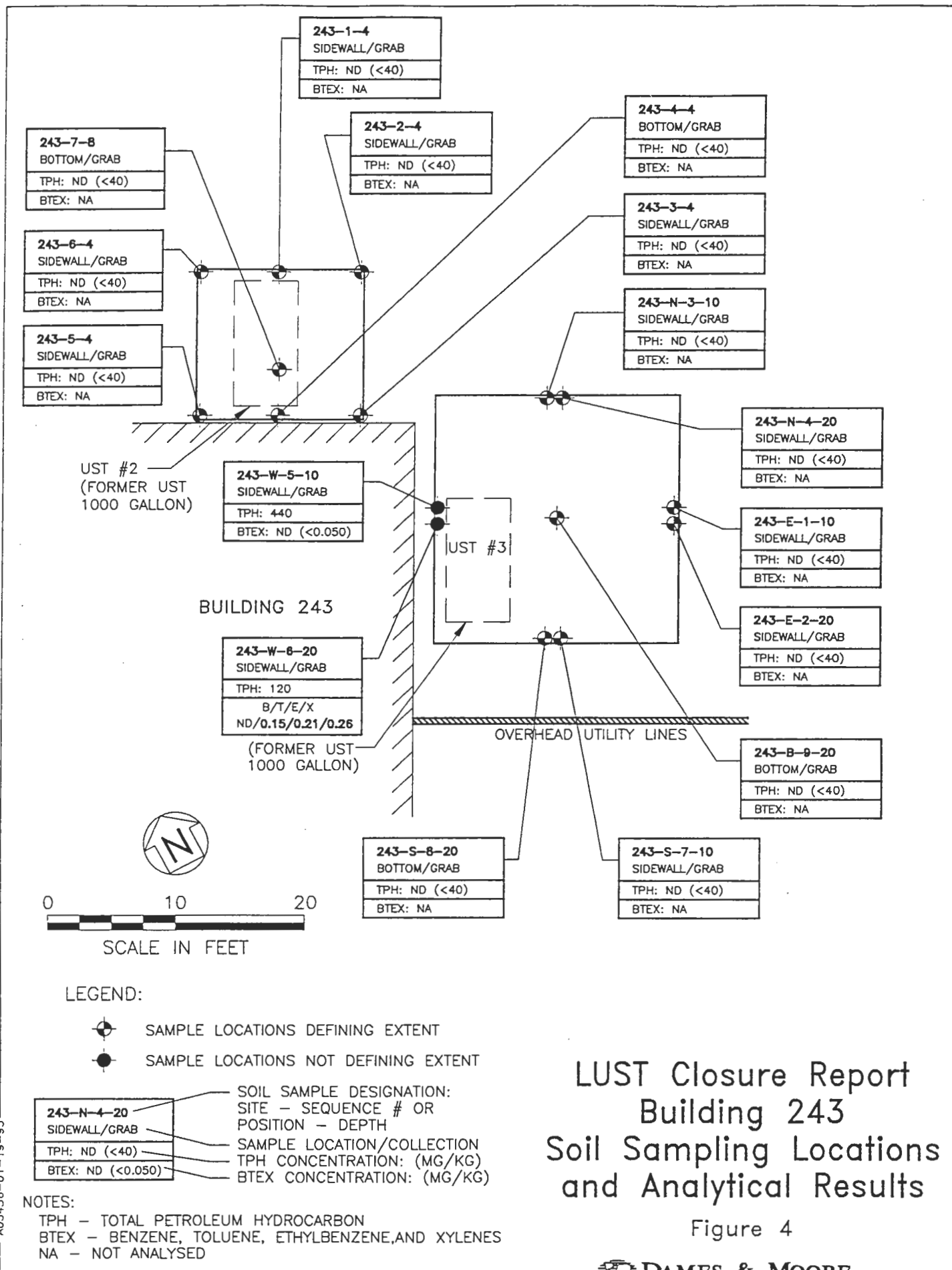


LEGEND:

⊕ 243-3 BORING NAME
AND LOCATION

LUST Closure Report Building 243 LUST Excavations and Boring Locations

Figure 3



LUST Closure Report Building 243 Soil Sampling Locations and Analytical Results

APPENDIX A

LABORATORY ANALYTICAL REPORTS



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LABORATORY REPORT

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Client Address: 7500 N. Dreamy Draw Drive, Suite 145
Phoenix, AZ 85020

Report Date: 10/18/94
Lab P.N.: AZ1422
Client P.N.: 27674-003-022
Lab Cert. #: AZ0470/AZM027/AZM457

Contact: Brad Legg

Project Name: OMS-6, Asphalt Plant 243
Project Address: N/A

Date Sampled: 10/3/94-10/10/94
Date Received: 10/3/94-10/10/94
Date Analyzed: 10/3/94-10/25/94
Physical State: Solid/Liquid

Quality Assurance/Quality Control Summary

Parameter (Method)	QC Type	MS Percent Recovery	Acceptable Range
TPH, Recoverable (BLS 181)	M	112	85-125
TPH, Recoverable (BLS 181)	M	102	85-125
TPH, Recoverable (BLS 181)	M	106	85-125
TPH, Recoverable (BLS 181)	M	109	85-125
TPH, Recoverable (BLS 181)	M	95	85-125
TPH, Recoverable (BLS 181)	M	160*	85-125
TPH, Recoverable (BLS 181)	M	105	85-125
TPH, Recoverable (BLS 181)	M	100	85-125
TPH, Recoverable (BLS 181)	M	97	85-125
TPH, Recoverable (BLS 181)	M	108	85-125
TPH, Recoverable (BLS 181)	M	99	85-125
TPH, Recoverable (BLS 181)	M	100	85-125
TPH, Recoverable (BLS 181)	M	94	85-125
TPH, Recoverable (BLS 181)	M	103	85-125

*MS recovery was outside of QC limits due to possible matrix interferences; Surrogate recoveries for the native samples used for spiking were also elevated, but still within QC limits.

M = Matrix Spike / Matrix Spike Duplicate

L = Laboratory Control Sample Spike / Spike Duplicate

Reviewed

Approved

The samples were received by Terra Tech Labs in a chilled state, intact and accompanied by the Chain-of-Custody Record.

Acceptance of samples by Terra Tech Labs is not an indication of condition upon receipt.

Laboratory Results apply only to the sample matrix analyzed and may not apply to an apparently identical or similar sample.

The Laboratory Report is the property of the client to whom it is addressed.

The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/3/94-10/10/94
 Date Analyzed: 10/3/94-10/25/94
 Physical State: Solid/Liquid

Quality Assurance/Quality Control Summary

<u>Parameter (Method)</u>	<u>QC Type</u>	<u>MS Percent Recovery</u>	<u>MSD Percent Recovery</u>	<u>Acceptable Range</u>	<u>Relative Percent Difference</u>	<u>Acceptable Range</u>
<u>Solid</u>						
Benzene (EPA 8020)	M	103	96	57-129	7	0-20
Toluene (EPA 8020)	M	104	101	70-116	2	0-20
Ethylbenzene (EPA 8020)	M	97	97	64-118	0	0-20
Xylenes, Total (EPA 8020)	M	101	99	66-118	2	0-20
Benzene (EPA 8020)	M	90	75	57-129	15	0-20
Toluene (EPA 8020)	M	94	87	70-116	8	0-20
Ethylbenzene (EPA 8020)	M	89	84	64-118	6	0-20
Xylenes, Total (EPA 8020)	M	93	90	66-118	3	0-20
Benzene (EPA 8020)	M	99	110	57-129	11	0-20
Toluene (EPA 8020)	M	95	104	70-116	9	0-20
Ethylbenzene (EPA 8020)	M	95	105	64-118	10	0-20
Xylenes, Total (EPA 8020)	M	95	104	66-118	9	0-20
Benzene (EPA 8020)	M	161*	161*	57-129	0	0-20
Toluene (EPA 8020)	M	159*	166*	70-116	4	0-20
Ethylbenzene (EPA 8020)	M	169*	176*	64-118	4	0-20
Xylenes, Total (EPA 8020)	M	158*	163*	66-118	3	0-20
<u>Liquid</u>						
Benzene (EPA 8020)	M	101	108	57-129	7	0-20
Toluene (EPA 8020)	M	102	108	70-116	6	0-20
Ethylbenzene (EPA 8020)	M	99	105	64-118	6	0-20
Xylenes, Total (EPA 8020)	M	100	107	66-118	7	0-20

*MS/MSD were not within acceptable QC limits due to possible matrix interferences; LCS was within acceptable limits.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/3/94-10/5/94
 Date Analyzed: 10/3/94-10/25/94
 Physical State: Solid

Aromatic Volatile Organics (BTEX), EPA 8020

Sample ID	Benzene EPA 8020 mg/kg	Toluene EPA 8020 mg/kg	Ethylbenzene EPA 8020 mg/kg	Xylenes, Total EPA 8020 mg/kg	Surrogate Recovery Percent (%)
OMS6-1-5	ND	ND	ND	ND	115
OMS6-2-5	ND	ND	ND	ND	104
OMS6-3-5	ND	ND	ND	ND	116
OMS6-4-12	ND	ND	ND	ND	102
OMS6-5-11	ND	ND	ND	ND	89
OMS6-6-12	ND	ND	ND	ND	99
OMS6-7-12	ND	ND	ND	ND	115
OMS6-8-5	ND	ND	ND	ND	117
OMS6-9-5	ND	ND	ND	ND	106
MOGAS-1-3	ND	ND	ND	ND	105
MOGAS-3-2.5	ND	ND	ND	ND	114
MOGAS-4-3	ND	ND	ND	ND	112
MOGAS-5-3	ND	ND	ND	ND	113
MOGAS-6-4	ND	ND	ND	0.24	106
243-N-4-20*	ND	ND	ND	ND	113
242-W-6-20	ND	0.15	0.21	0.26	116
Pea Gravel	ND	ND	ND	ND	110
OMS6-PAD1-N	ND	ND	ND	ND	135
OMS6-PAD1-E	ND	ND	ND	ND	114
OMS6-PAD1-W	ND	ND	ND	ND	111
OMS6-PAD2-E	ND	ND	ND	ND	112
OMS6-PAD2-S	ND	ND	ND	ND	117
Method Blank (10/3/94)	ND	ND	ND	ND	110
Method Blank (10/7/94)	ND	ND	ND	ND	114
Method Blank (10/8/94)	ND	ND	ND	ND	112
Method Blank (10/25/94)	ND	ND	ND	ND	111

Quantitation Limits mg/kg	0.050	0.050	0.050	0.050
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*This sample was analyzed outside the recommended holding time for this method.

ND; Not Detectable

The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
Client Address: 7500 N. Dreamy Draw Drive, Suite 145
Phoenix, AZ 85020

Report Date: 10/18/94
Lab P.N.: AZ1422
Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
Project Address: N/A

Date Sampled: 10/4/94-10/5/94
Date Analyzed: 10/8/94
Physical State: Liquid

Aromatic Volatile Organics (BTEX), EPA 8020

<u>Sample ID</u>	Benzene	Toluene	Ethylbenzene	Xylenes,	Surrogate
	EPA 8020	EPA 8020	EPA 8020	Total EPA 8020	
	<u>mg/l</u>	<u>mg/l</u>	<u>mg/l</u>	<u>mg/l</u>	<u>Recovery Percent (%)</u>
243-EQUIP	ND	ND	ND	ND	109
AP-EQUIP	ND	ND	ND	ND	106
Method Blank (10/8/94)	ND	ND	ND	ND	112
<hr/>					
Quantitation Limits mg/l	0.0010	0.0010	0.0010	0.0010	

ND; Not Detectable
The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/4/94-10/7/94
 Date Analyzed: 10/7/94-10/8/94
 Physical State: Solid

Aromatic Volatile Organics (BTEX), EPA 8020

<u>Sample ID</u>	<u>Benzene EPA 8020 mg/kg</u>	<u>Toluene EPA 8020 mg/kg</u>	<u>Ethylbenzene EPA 8020 mg/kg</u>	<u>Xylenes, Total EPA 8020 mg/kg</u>	<u>Surrogate Recovery Percent (%)</u>
OMS6-PAD2-W	ND	ND	ND	ND	114
OMS6-11-5	ND	ND	ND	ND	110
OMS6-13-4	ND	ND	ND	ND	116
OMS6-14-3.5	ND	ND	ND	ND	111
OMS6-15-5	ND	ND	ND	ND	113
OMS6-16-5	ND	ND	ND	ND	105
OMS6-17-3	ND	ND	ND	ND	108
OMS6-18-7	ND	ND	ND	ND	110
MOGAS-10-3.5	ND	ND	ND	ND	110
<hr/>					
Quantitation Limits mg/kg	0.050	0.050	0.050	0.050	

ND; Not Detectable
 The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/3/94-10/4/94
 Date Analyzed: 10/3/94-10/4/94
 Physical State: Solid

<u>Sample ID</u>	TPH Recoverable BLS 181 <u>mg/kg</u>	Quantitation Limits <u>mg/kg</u>
OMS6-1-5	ND	40
OMS6-2-5	ND	40
OMS6-3-5	ND	40
OMS6-4-12	ND	40
OMS6-5-11	ND	40
OMS6-6-12	ND	40
OMS6-7-12	ND	40
OMS6-8-5	ND	40
OMS6-9-5	ND	40
MOGAS-1-3	ND	40
MOGAS-2-2.5	ND	40
MOGAS-3-2.5	ND	40
MOGAS-4-3	ND	40
MOGAS-5-3	ND	40
MOGAS-6-4	ND	40
MOGAS-7-3	ND	40
MOGAS-8-3	ND	40
243-E-1-10	ND	40
243-E-2-20	ND	40
243-N-3-10	ND	40
243-N-4-20	ND	40
243-W-5-10	440	40
243-W-6-20	120	40
243-S-7-10	ND	40
243-S-8-20	ND	40
243-B-4-20	ND	40
Pea Gravel	ND	40
Method Blank (10/3/94)	ND	40
Method Blank (10/4/94)	ND	40

ND; Not Detectable

The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Darnes and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/4/94-10/5/94
 Date Analyzed: 10/4/94-10/5/94
 Physical State: Solid

<u>Sample ID</u>	TPH	Quantitation
	Recoverable BLS 181 <u>mg/kg</u>	Limits <u>mg/kg</u>
243-1-4	ND	40
243-2-4	ND	40
243-3-4	ND	40
243-4-4	ND	40
OMS6-PAD1-N	ND	40
OMS6-PAD1-S	ND	40
OMS6-PAD1-E	ND	40
OMS6-PAD1-W	ND	40
OMS6-PAD2-N	ND	40
OMS6-PAD2-E	ND	40
OMS6-PAD2-S	ND	40
OMS6-PAD2-W	ND	40
OMS6-10-5	110	40
OMS6-11-5	ND	40
OMS6-12-3.5	460	40
OMS6-13-4	ND	40
OMS6-14-3.5	ND	40
AP-CONC-1	ND	40
AP-CONC-2	ND	40
AP-CONC-3	ND	40
AP-1-4	1,200	40
AP-2-4	91	40
AP-3-4	800	40
AP-4-4	ND	40
AP-5-2	60	40
AP-6-2.5	300	40
AP-7-2.5	75	40
AP-8-2	ND	40
Method Blank (10/5/94)	ND	40

ND; Not Detectable
 The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/5/94-10/7/94
 Date Analyzed: 10/5/94-10/7/94
 Physical State: Solid

<u>Sample ID</u>	TPH Recoverable BLS 181 <u>mg/kg</u>	Quantitation Limits <u>mg/kg</u>
AP-UST-W-10	ND	40
AP-UST-B-10	2,200	200
AP-UST-S-10	4,500	200
AP-UST-N-10	320	40
AP-UST-E-10	1,800	200
AP-4-3	ND	40
AP-9-5	ND	40
AP-10-5	75	40
AP-11-5	650	40
AP-12-5	2,500	40
AP-CONC-4	59	40
AP-CONC-5	170	40
AP-CONC-6	60	40
AP-CONC-7	150	40
AP-CONC-8	89	40
AP-CONC-9	170	40
AP-CONC-10	3,100	200
AP-CONC-11	ND	40
AP-13-2	1,500	200
AP-14-3	1,100	40
AP-15-2	ND	40
AP-16-3	ND	40
AP-17-3	ND	40
AP-18-3	ND	40
AP-19-3	ND	40
A-20-5	ND	40
OMS6-15-5	ND	40
Method Blank (10/5/94)	ND	40
Method Blank (10/6/94)	ND	40
Method Blank (10/7/94)	ND	40

ND; Not Detectable

The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/7/94-10/10/94
 Date Analyzed: 10/7/94-10/10/94
 Physical State: Solid

<u>Sample ID</u>	TPH	Quantitation
	Recoverable BLS 181 <u>mg/kg</u>	Limits <u>mg/kg</u>
OMS6-16-5	ND	40
OMS6-17-3	ND	40
OMS6-18-7	ND	40
MOGAS-9-5	ND	40
MOGAS-10-3.5	ND	40
AP-21-3	74	40
AP-22-3	ND	40
AP-23-5	ND	40
AP-24-5	ND	40
AP-25-7	ND	40
AP-26-7	ND	40
AP-27-7	74	40
AP-28-7	2,900	400
AP-29-7	1,200	200
AP-30-7	430	40
243-5-4	ND	40
243-6-4	ND	40
243-7-8	ND	40
243-SP-1	80	40
29-E-10	ND	40
29-N-10-1150	390	40
29-W-10-1155	47	40
29-B-17	94	40
29-N-10-1335	ND	40
29-W-10-1340	ND	40
29-B-18	ND	40
29-S-10	ND	40
29-SP-1	ND	40
MOGAS-SP-1	51	40
Method Blank (10/10/94)	ND	40

ND; Not Detectable
 The Laboratory Results are only a portion of the Laboratory Report.

CHAIN - OFF - CUSTOMY RECORD

Client AAWAK - Camp Nuts Date 10/3/94 Page 1 of 2

Project Name AAWAK - Camp Nuts Client Reference # 27674-003-022

Project Address OKS-6 Turn Around Requested:
☐ Immediate Attention
☐ Rush 24-48 Hours
☐ Rush 48-96 Hours
☐ Normal
☒ Mobile Lab

Project Contact (please print) Barry Legg/Danar Moore

Sample ID	Sample Location	Date	Time	Physical State: Solid (S) Liquid (L) Vapor (V)	Number of Containers	Container/Comments	Lab Sample Number
OMS6-1-5		10/3/94	11:15	S	2	Pin ATX	142201
OMS6-2-5		"	11:20	S	2	"	142202
OMS6-3-5		"	11:30	S	2	"	142203
OMS6-4-12		"	11:50	S	2	"	142204
OMS6-5-11		"	11:55	S	2	"	142205
OMS6-6-12		"	12:00	S	2	"	142206
OMS6-7-12		"	12:30	S	2	"	142207
OMS6-8-5		"	12:55	S	2	"	142208
OMS6-9-5		"	13:05	S	2	"	142209
MOGAS-1-3		"	14:30	S	2	"	142210
MOGAS-2-2.5		"	14:35	S	2	"	142211
MOGAS-3-2.5		"	14:55	S	2	"	142212
MOGAS-4-3		"	15:00	S	2	"	142213
MOGAS-5-3		"	15:15	S	2	"	142214
MOGAS-6-4		"	15:25	S	2	"	142215
Total Number of Containers					30		

① Relinquished by (signature)* [Signature] Date 10/3/94

Company Danar Moore Time 16:45

② Received by (signature)* [Signature] Date 10/3/94

Company Terra Tech Labs Time 16:45

③ Relinquished by (signature)* [Signature] Date 10/3/94

Company Terra Tech Labs Time 16:45

Special Instructions Hold All 8220 ATX



Corporate Office
 1920 E. Deere Ave., Suite 130
 Santa Ana, CA 92705
 Tel 714.757.7022 800.377.2322
 Fax 714.757.7274

Arizona Office
 3902 E. University Drive, Suite 4
 Phoenix, Arizona 85034
 Tel 602.437.9367 Fax 602.437.9362

Page 2 of 2

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Special Instructions
H''A'' PO: M-1-1980
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Corporate Office

1920 E. Deere Ave., Suite 130
Santa Ana, CA 92705

Tel 714.757.7022 800.377.2322
Fax 714.757.7274

Arizona Office

3902 E. University Drive, Suite 4
Phoenix, Arizona 85034

Tel 602.437.9367 Fax 602.437.9362

Client AARNC - Cemo Naxio
Date 6/23/99
Analysis Requested All analyses and deliverables must be identified (see section 4.8 & 4.9 on reverse)
Page / of /

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**LOVE
FROM
TERRA**

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CHAIN - OFF - CUSTODY RECORD

Client AARNG - Camp Navajo

Project Name MS-6, Asphalt Plant

Project Address Blk 243

Project Contact (please print) Archie Lopez / Navajo

Date 10/5/94

Client Reference # 27674-003-022

Turn Around Requested:

☐ Immediate Attention

☐ Rush 24-48 Hours

☐ Rush 48-96 Hours

☐ Normal

☒ Mobile Lab

Analysis Requested
All analyses and deliverables must be identified (see section 4.8 & 4.9 on reverse)

Physical State: Solid ☒ Liquid ☐ Vapor ☐

Page 1 of 2

Lab Use Only

Lab Job # AZ-1423

C.O. # _____

C.O. # _____

C.O. # _____

C.O. # _____

Sample Condition Upon Receipt:

Chilled ☐ yes ☐ no

Sealed ☐ yes ☐ no

Sample ID	Sample Location	Date	Time	Physical State: Solid <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Vapor <input type="checkbox"/>	Number of Containers	Container/Comments	Lab Sample Number
MS6-PA02-N		10/5/94	07:30	S	1		142237
MS6-PA02-E		"	07:35	S	1		142238
MS6-PA02-S		"	07:40	S	1		142239
MS6-PA02-W		"	07:45	S	1		142240
MS6-10-S		"	08:05	S	1		142241
MS6-11-S		"	08:10	S	1		142242
MS6-12-3.5		"	08:30	S	1		142243
MS6-13-4		"	08:35	S	1		142244
MS6-14-3.5		"	08:45	S	1		142245
AP-CONC-1		"	11:45	S	1		142246
AP-CONC-2		"	11:50	S	1		142247
AP-CONC-3		"	11:55	S	1		142248
AP-1-4		"	14:00	S	1		142249
AP-2-4		"	14:02	S	1		142250
AP-3-4		"	14:05	S	1		142251

Relinquished by (signature)* [Signature]

Relinquished by (signature)* [Signature]

Relinquished by (signature)* [Signature]

Received by (signature) [Signature]

Date 10/5/94

Time 17:30

Company Navajo

Company TERRA TECH LABS

Special Instructions



Corporate Office
1920 E. Deere Ave.
Santa Ana, CA 92705
Tel 714.757.7022 800.371.2322
Fax 714.757.7274

Arizona Office
3902 E. University Drive, Suite 4
Phoenix, Arizona 85034
Tel 602.437.9367 Fax 602.437.9362

CHAIN - OFF - CUSTODY RECORD

Client AAWG - Camp Navajo

Project Name Asphalt Plant

Project Address Asphalt Plant

Project Contact (please print) Fred Lopez, Owner & Manager

Date 10/6/94

Client Reference # 27674-003-022

Turn Around Requested:

☐ Immediate Attention

☐ Rush 24-48 Hours

☐ Rush 48-96 Hours

☐ Normal

☒ Mobile Lab

Analysis Requested

All analyses and deliverables must be identified (see section 4.8 & 4.9 on reverse)

Physical State: Solid ☒ Liquid (L) Vapor (V)

Page 1 of 2

Lab Use Only

Lab Job # 1422

C.O. # _____

C.O. # _____

C.O. # _____

C.O. # _____

Sample Condition Upon Receipt:

Chilled ☐ yes ☐ no

Sealed ☐ yes ☐ no

Sample ID	Sample Location	Date	Time	Physical State: Solid <input checked="" type="checkbox"/> Liquid (L) Vapor (V)	Number of Containers	Container/Comments	Lab Sample Number
AP-9-5		10/6/94	10:25	S	1		142264
AP-10-5		"	10:30	S	1		142265
AP-11-5		"	10:33	S	1		142266
AP-12-5		"	10:35	S	1		142267
AP-CONC-4		"	10:50	S	1		142268
AP-CONC-5		"	10:55	S	1		142269
AP-CONC-6		"	10:00	S	1		142270
AP-CONC-7		"	11:05	S	1		142271
AP-CONC-8		"	11:35	S	1		142272
AP-CONC-9		"	11:40	S	1		142273
AP-CONC-10		"	11:45	S	1		142274
AP-CONC-11		"	11:50	S	1		142275
AP-13-2		"	12:10	S	1		142276
AP-14-3		"	12:15	S	1		142277
AP-15-2		"	12:20	S	1		142278
Total Number of Containers							15

Relinquished by (signature): [Signature]

Relinquished by (signature): [Signature]

Relinquished by (signature): [Signature]

Company Terra Tech Labs

Company Terra Tech Labs

Company Terra Tech Labs

Special Instructions

Date 10/6/94

Time 10:47

Corporate Office

1920 E. Deerp Ave.

Santa Ana, CA 92705

Tel 714.757.7022 800.377.2322

Fax 714.757.7274

Arizona Office

3902 E. University Drive, Suite 4

Phoenix, Arizona 85034

Tel 602.437.9367 Fax 602.437.9362



Page 2 of 2

Page 2 of 2

Lab Use Only
Lab Job # AZ-122

C.O.
C.O.
C.O.

C.O. # _____
C.O. # _____
Sample Condition Upon Receipt: _____

Chilled ☐ yes ☐ no
Sealed ☐ yes ☐ no

Lab Sample Number

142279	142280
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142280	
142281	

142282	
142282	

00741	
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Number of Containers

Corporate Office

920 E. Deere Ave., Suite 130
Santa Ana, CA 92705
Tel 714 757 7022 900 277 2222

tel 714.757.7022 fax 714.757.7274
800.311.2322

Arizona Office
902 E. University Drive, Suite 4
Phoenix, Arizona 85034

tel 602.437.9367 Fax 602.437.9362

Corporate Office

1920 E. Deere Ave., Suite 130
Santa Ana, CA 92705

Santa Ana, CA 92705

Tel 714.757.7022 800.377.2322

Fax 714.757.7274

Arizona Office

3902 E. University Drive, Suite 4

3902 E. UNIVERSITY DRIVE,
PHOENIX, ARIZONA 85034

Tel 602.437.9367 Fax 602.437.9362

THE TWO LADS

Received by Laboratory (signature)

John X. Smith

Laboratory Name Alco-Hick Labs

Let μ be a

① Relinquished by (signature)*

[Signature]

Company

Daso J Moore

Reinquished by (signature) _____

1003

Company

Special Instructions

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...e Ter. J Cond section; rever re sic

CHAIN - OFF - CUSTODY RECORD

Client AAEN6 - Camp Navajo Date 10/2/94 Page 1 of 2

Project Name _____

Project Address ONS C, Asphalt Plant

Project Contact (please print) Bradley Daniel Moore

Client Reference # 27674-003-022

Turn Around Requested:

☐ Immediate Attention

☐ Rush 24-48 Hours

☐ Rush 48-96 Hours

☐ Normal

☒ Mobile Lab

Analysis Requested (see section 4.8 & 4.9 on reverse)

Lab Use Only

Lab Job # AZ-1422

C.O. # _____

C.O. # _____

C.O. # _____

C.O. # _____

Sample Condition Upon Receipt:

Chilled ☐ yes ☐ no

Sealed ☐ yes ☐ no

Sample ID	Sample Location	Date	Time	Physical State: Solid (S) Liquid (L) Vapor (V)	Number of Containers	Container/Comments	Lab Sample Number
OM56-15-5		10/2/94	10:20	S	2		142284
OM56-16-5		"	10:05	S	2		142285
OM56-17-3		"	10:10	S	2		142286
OM56-18-7		"	10:15	S	2		142287
MO645-9-5		"	10:30	S	2		142288
MO645-10-3.5		"	10:34	S	2		142289
AP-21-3		"	12:20	S	1		142290
AP-22-3		"	12:25	S	1		142291
AP-23-5		"	12:27	S	1		142292
AP-24-5		"	12:30	S	1		142293
AP-25-7		"	12:35	S	1		142294
AP-26-7		"	12:36	S	1		142295
AP-27-7		"	12:39	S	1		142296
AP-28-7		"	13:05	S	1		142297
AP-29-7		"	13:07	S	1		142298
Total Number of Containers							21

Received by (signature) _____ Date _____

Relinquished by (signature)* _____

Company _____

Received by Laboratory (signature) _____ Date 10/7/94

Relinquished by (signature)* _____ Time 14:00

Company Terra Tech Labs

Special Instructions _____

Corporate Office
1920 E. Deere Ave., Suite 130
Santa Ana, CA 92705
Tel 714.757.7022 800.377.2322
Fax 714.757.7214

Arizona Office
3902 E. University Drive, Suite 4
Phoenix, Arizona 85034
Tel 602.437.9367 Fax 602.437.9362



10000 Deere Ave. Suite 101 Santa Ana, California 92704
TEL: 714/241-1111 FAX: 714/241-1112
E-MAIL: info@terra-tech.com
WWW: www.terra-tech.com



LABORATORY REPORT

Client: Dames and Moore
Client Address: 7500 N. Dreamy Draw Drive, Suite 145
Phoenix, AZ 85020

Report Date: 10/18/94
Lab P.N.: AZ1422.1
Client P.N.: 27674-003-022
Lab Cert. #: AZ0470

Contact: Brad Legg

Project Name: OMS-6, Asphalt Plant 243
Project Address: N/A

Date Sampled: 10/3/94-10/7/94
Date Received: 10/3/94-10/7/94
Date Analyzed: 10/7/94-10/10/94
Physical State: Solid

Quality Assurance/Quality Control Summary

Parameter (Method)	QC Type	MS	MSD	Acceptable Range	Relative	Acceptable Range
		Percent Recovery	Percent Recovery		Percent Difference	
TPH, Recoverable (BLS 181)	M	100	-	85-125	-	-
TPH, Recoverable (BLS 181)	M	112	-	85-125	-	-
Benzene (EPA 8020)	M	103	96	57-129	7	0-20
Toluene (EPA 8020)	M	104	101	70-116	2	0-20
Ethylbenzene (EPA 8020)	M	97	97	64-118	0	0-20
Xylenes, Total (EPA 8020)	M	101	99	66-118	2	0-20
Benzene (EPA 8020)	M	90	75	57-129	15	0-20
Toluene (EPA 8020)	M	94	87	70-116	8	0-20
Ethylbenzene (EPA 8020)	M	89	84	64-118	6	0-20
Xylenes, Total (EPA 8020)	M	93	90	66-118	3	0-20

M = Matrix Spike / Matrix Spike Duplicate

L = Laboratory Control Sample Spike / Spike Duplicate

Reviewed

Approved

The samples were received by Terra Tech Labs in a chilled state, intact and accompanied by the Chain-of-Custody Record.
Acceptance of samples by Terra Tech Labs is not an indication of condition upon receipt.
Laboratory Results apply only to the sample matrix analyzed and may not apply to an apparently identical or similar sample.
The Laboratory Report is the property of the client to whom it is addressed.
The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422.1
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/3/94-10/7/94
 Date Analyzed: 10/7/94-10/8/94
 Physical State: Solid

Aromatic Volatile Organics (BTEX), EPA 8020

<u>Sample ID</u>	<u>Benzene EPA 8020 mg/kg</u>	<u>Toluene EPA 8020 mg/kg</u>	<u>Ethylbenzene EPA 8020 mg/kg</u>	<u>Xylenes, Total EPA 8020 mg/kg</u>	<u>Surrogate Recovery Percent (%)</u>
MOGAS-2-2.5	ND	ND	0.18	0.73	115%
OMS6-PAD1-S	ND	ND	ND	ND	108%
OMS6-PAD2-N	ND	ND	ND	ND	115%
MOGAS-9-5	ND	ND	ND	ND	108%
Method Blank (10/7/94)	ND	ND	ND	ND	114%
Method Blank (10/8/94)	ND	ND	ND	ND	112%
Quantitation Limits mg/kg	0.050	0.050	0.050	0.050	

ND; Not Detectable
 The Laboratory Results are only a portion of the Laboratory Report.

LABORATORY RESULTS

Client: Dames and Moore
 Client Address: 7500 N. Dreamy Draw Drive, Suite 145
 Phoenix, AZ 85020

Report Date: 10/18/94
 Lab P.N.: AZ1422.1
 Client P.N.: 27674-003-022

Project Name: OMS-6, Asphalt Plant 243
 Project Address: N/A

Date Sampled: 10/3/94-10/7/94
 Date Analyzed: 10/5/94-10/10/94
 Physical State: Solid

<u>Sample ID</u>	TPH	Quantitation
	Recoverable	Limits
	BLS 181 <u>mg/kg</u>	<u>mg/kg</u>
OMS6-2-5	ND	40
✓MOGAS-2-2.5	ND	40
243-W-6-20	120	40
243-W-5-10	440	40
OMS6-PAD1-S	ND	40
OMS6-PAD2-N	ND	40
AP-UST-5-10	1,600	200
AP-CONC-10	2,800	200
AP-17-3	140	40
✓MOGAS-9-5	ND	40
Method Blank (10/10/94)	ND	40

ND; Not Detectable
 The Laboratory Results are only a portion of the Laboratory Report.

